# REMARKS

This application has been further reviewed in light of the Office Action dated March 9, 2007. Claims 17, 25, 27, 28, 30, 42 to 46, 76, 84, 86, 87, 89, 101 to 105, 135, 143, 145, 146, 148, 160 to 164 and 178 to 183 are pending in the application, of which Claims 17, 30, 76, 89, 135 and 148 are independent. Reconsideration and further examination are respectfully requested.

Claims 17, 25 to 28, 30, 42 to 46, 76, 84 to 87, 89, 101 to 105, 135, 143 to 146, 148, 160 to 164 and 178 to 183 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,205,477 (Johnson). The rejections are again traversed and the Examiner is requested to reconsider and withdraw the rejections in light of the following comments.

The present invention concerns a server determining apparatus (e.g., network status (NS) server 11) that determines which one of a plurality of information distribution servers a client should access. In the invention, a client (e.g., client 4) accesses a first information distribution server (e.g., server A in site 4 of Fig. 2). Server A issues an inquiry to NS server 11 to determine which information distribution server from among a plurality of information distribution servers (e.g., server A, server B and server C) that the client should access. In relation to this first access request but not necessarily required in practicing the invention, NS server 11 queries route server 10 to find out which information distribution server in the network has the smallest logical distance to client 4. In this regard, route server 10 may maintain a database of clients and information distribution servers in the network and stores information regarding the logical distance between each of the clients and each of the information distribution servers. NS server 11

returns a response to server A as to which information distribution server client 4 should access based on the logical distance. As one example, the smallest logical distance may be between client 4 and server B. Server A then informs client 4 that it should access server B.

Client 4 (or rather, the browser in client 4), upon receiving the information informed by server A, then accesses the determined server (Server B). Server B, upon receiving the access request from client 4, inquires with NS server 11 whether or not it is the optimum server for client 4 to access. This second access request by client 4 is submitted by server B to NS server 11. NS server 11, in the time between receiving the first access request from server A for client 4 and receiving the second access request from server B for client 4, collects, updates and stores state (network state) information of each of the information distribution servers. For example, NS server 11 maintains information regarding the number of routers (hops) between the information distribution servers and the client 4, the response time, and network information such as the packet loss ratio and network information in each site (congestion degree, number of packets, number of packet errors, etc.) and server state information (e.g., CPU load ratio, CPU idle ratio, number of connection links, disk load ratio, etc.). When NS server 11 receives the second access request from the same client 4 (albeit, perhaps from a different server than the first inquiry was received from), it utilizes the state information collected between the time that the first access request was received and the time that the second access request was received in order to determine the optimum server for client 4 to access. The second determined server

(e.g., Server C) is then informed to server B, which in turn submits information to client 4 so that client 4 (or rather, the browser in client 4) can then access server C.

Thus, in the invention, the first determination is made merely utilizing logical distance information. The second determination, on the other hand, is made utilizing state information that is collected from each of the servers, and that is collected between the time of the first inquiry for client 4 and the second inquiry for client 4 (i.e., two inquiries for the same client based on two different access requests). As a result, the optimum server can be determined for the second and subsequent accesses by the same client to keep up with the ever changing demand (load) on each of the servers in the network based on up-to-date state information collected by the server determining apparatus.

Referring specifically to the claims, Claim 17 is directed to a server determination apparatus, comprising first receiving means for receiving a first inquiry from a first one of a plurality of information distribution servers as to which one of the plurality of information distribution servers a client should access based on a first access request received by the first one of the plurality of information distribution servers from the client, collection means for collecting, from the plurality of information distribution servers, network state information between the client and each of the plurality of information distribution servers, first server determination means for determining, based on a logical distance between the client and each of the plurality of information distribution servers, which one of the plurality of information distribution servers should be accessed by the client which submitted the first access request to the first one of the plurality of the

information distribution, first informing means for informing the first information distribution server of the one of the plurality of information distribution servers that the client should access determined by the first server determination means, second receiving means for receiving a second inquiry from the determined one of the plurality of information distribution servers as to which one of the plurality of information distribution servers the client should access based on a second access request received by the determined one of the plurality of information distribution servers from the client, wherein the second access request received by the determined one of the information distribution servers is initiated by the client in response to receipt by the client from the first one of the information distribution servers information indicating the determined one of the plurality of information distribution servers informed by the first informing means, second server determination means for determining, based on network state information collected by the collecting means between the time that the first inquiry is received by the first receiving means and the time that the second inquiry is received by the second receiving means, which one of the plurality of information distribution servers should be accessed by the client, and second informing means for informing the one of the plurality of information distribution servers that submitted the inquiry received by the second receiving means which one of the plurality of information distribution servers that the client should access determined by the second server determination means.

Claims 76 and 135 are method and computer medium claims, respectively, that substantially correspond to Claim 17.

Claim 30 roughly corresponds to Claim 17, with one difference being the collection of state information of each of the servers rather the collection of network state information between the client and each of the servers. Claims 89 and 148 are method and computer medium claims that substantially correspond to Claim 30.

The applied art of Johnson is not seen to disclose or to suggest the features of Claims 17, 30, 76, 89, 135 and 148, and in particular, is not seen to disclose or to suggest at least the features of, a server determination apparatus receiving a second inquiry from a determined one of the plurality of information distribution servers (which was determined based on a logical distance between a client and each of the plurality of servers) as to which one of the plurality of information distribution servers the client should access based on a second access request received by the determined one of the plurality of information distribution servers from the client, wherein the second access request received by the determined one of the information distribution servers is initiated by the client in response to receipt by the client from a first one of the information distribution servers of information indicating the determined one of the plurality of information distribution servers, and determining, based on (network) state information collected from each of the plurality of information distribution servers between the time that the first inquiry is received and the time that the second inquiry is received, which one of the plurality of information distribution servers should be accessed by the client.

As Applicant understands Johnson, a distributed director 72 performs the access request distribution processes. In Johnson, an administrator performs the system setup by allocating a portion metric to each server in the network. That is, the

administrator sets a proportional amount of total access requests that are to be allocated to each server in the network. For instance, portion metrics of 20%, 32% and 60% may be allocated to three servers, respectively. If the sum of the total portion metrics exceeds 100%, each metric is scaled down correspondingly so that they retain their relative portion metric.

In Fig. 1 of Johnson, an example network in which the portion metric system of Johnson may be employed is shown. Column 4, line 61 to column 5, line 19 of Johnson discusses a "typical" system in which, when a client submits an access request, a logical distance metric is employed to determine which server the client should access. As discussed thereafter, however, where the logical distance is the same for two or more servers, an alternate metric such as the processor speed of each server may need to be employed as a tie-breaker. Thus, Fig. 1 of Johnson merely depicts a "typical" system in which a distance metric is used and an alternate metric is used as a tie-breaker.

The Office Action also refers to column 5, lines 39 to 60 of Johnson. Specifically, the Office Action alleged that this portion of Johnson teaches the use of one or more metrics, including a distance metric as well as the availability of the servers. The Office Actoin is apparently equating the alleged "availability" metric with the claimed "state information" that is collected between the first and second access requests. While this portion of Johnson may teach the use of the distance metric, Applicant disagrees that it teaches an "availability" metric. Rather, this portion of Johnson merely states that "the distributed director 72 provides a portion metric which allows capabilities of each candidate server to be taken into consideration during distribution of each server request." As Applicant understands the foregoing, it merely refers to the director 72 applying the portion metric, which is set up by the administrator. In setting up the portion metric for

each server, the administrator would take into consideration hardware factors such as the disk size, processor speed, etc. in order to determine what metric to apply to each server. That is, servers with more disk space and faster processing speeds would be given a greater portion metric than servers with smaller disk sizes and slower processing speeds. Therefore, this portion of Johnson does not teach the alleged "availability" metric.

Applicant notes however, that although the cited portion of Johnson (col. 5, ll: 39-60) does not explicitly teach the use of an "availability" metric, in Johnson, the distance and portion metrics are used to determine which server the client should access, a counter for the determined server is incremented so that the total number of access requests allocated to each server can be accounted for. Once the counter is incremented, the portion metric for each server is adjusted so as to maintain the portion metric. (See, e.g., column 9, lines 11 to 36.) Thus, the distributed director 72 merely keeps track of how many access requests are distributed to each server so as to then determine which server to allocate a new request to. Applicant fails to see any teaching in Johnson in which network state information between the client and each of the servers is collected by the director 72, or where state information of each of the servers is collected from the servers. Additionally, Applicant fails to see any teaching in Johnson in which the second determination is made based on state information that is collected between the time of the first and second access requests. Rather, it appears to Applicant that Johnson makes its determination merely based on the number of requests allocated to each server, which is maintained internally by the director in accordance with its own allocation of requests. Accordingly, Johnson is simply not seen to teach the features of the invention.

In view of the foregoing deficiencies of Johnson and the above amendments, amended independent Claims 17, 30, 76, 89, 135 and 143, as well as the claims dependent therefrom, are believed to be allowable.

No other matters having been raised, the entire application is believed to be in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

Applicant's undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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FCHS_WS 1568884v1